

H. COMMERCIAL OPERATIONS AND SUPPORT SAVINGS INITIATIVE



The Commercial Operations and Support Savings Initiative (COSSI) uses commercial technology to improve the performance of legacy systems. Typically, a commercial technology cannot be used in a military system without a certain amount of nonrecurring engineering and testing to ensure the technology performs as required. COSSI provides the funds to perform this nonrecurring engineering and testing required. The technology insertions improve the performance of the system by significantly increasing reliability and reducing operations and support costs.

A competitive project call was issued in January 2001, and five projects were selected for funding during FY 2002. These projects are:

Electronic Characterization and Diagnostics (ECAD) of Wiring in Aircraft and Submarines DoD spends a considerable amount of time, money and effort maintaining the wiring and cables in aircraft and submarines. Often, wiring and cable failures can only be detected through a process of elimination as maintenance personnel troubleshoot a system failure. In some cases, electronic components are removed and tested when in fact the failure is due to faulty wiring and not the component itself. This project will modify a technology originally developed for the nuclear power industry and apply it to determine the condition of wiring in military systems. ECAD can detect subtle changes in wiring properties so failures can potentially be predicted and corrective actions taken before failures actually occur.

Support for the Modernization of the STANDARD Missile Common Guidance System The STANDARD Missile (SM) is the principal surface ship defense weapon for the Navy. There are several variants of the SM and each one has its own guidance system. This project will support the development of a common, high reliability guidance system that can be used on all variants. Six unique plates will be replaced by two common plates based on an open commercial standard, resulting in a higher reliability guidance system. Many of the obsolescence problems currently being experienced will also be eliminated.

Integrated Malaria Augmentation Package Malaria constitutes a serious infectious disease threat in many parts of the world. Some U.S. forces contracted malaria during Operation Restore Hope (Somalia) and Operation Uphold Democracy (Haiti). The current method for diagnosing malaria involves microscopic examination of a blood sample and does not lend itself to rapid in-theater diagnosis. This project will modify an existing commercial malaria test and treatment kit for field use and perform the testing needed for Food and Drug Administration (FDA) approval. Although the kit is currently available outside the U.S, FDA approval for sales within the U.S. is required before it can be used by our military personnel. The kit uses test strips instead of microscopic examination and can be deployed in the field.

Synthetic Instrumentation for Automated Test Systems The Consolidated Automated Support System (CASS) performs automated testing for all Navy avionics and electronic systems. CASS is based on 1980s technology and is comprised of a collection of individual instruments with unique interfaces. Because it was developed in the 1980s, CASS is experiencing obsolescence problems. Recent commercial technology allows for the development of synthetic instruments that can be configured in real time to perform various test functions. Signals are converted into digital representations which are then analyzed using high speed digital signal processing techniques. As a result, a single “synthetic” instrument can replace numerous single function instruments thereby reducing the logistics footprint and solving obsolescence problems.

Health and Usage Monitoring System for U.S. Army Special Forces’ Aircraft This project will install a Health and Usage Monitoring System Processor Module on the U.S. Army Special Forces fleet of MH-47D and MH 47E helicopters. The module will provide the capability to perform embedded diagnostics including rotor track and balance, performance monitoring, exceedance detection, and vibration monitoring. This on board capability will significantly reduce the labor and test flight hours needed for rotor track and balance. Other benefits include a reduction in scheduled and unscheduled maintenance actions, an expected reduction in accidents, and accurate tracking of aircraft usage of flight hours from HUMS data instead of pilot logs.